STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
HAZARDOUS WASTE SECTION

COMPLIANCE EVALUATION INSPECTION (CEI) REPORT

1. **FACILITY INFORMATION:**

Facility Name: Seaboard Chemical Corporation

EPA ID Number: NCD 071 574 164

Type of Facility: TSD

Facility Location: 5899 Riverdale Drive, Jamestown, NC 27263

2. **FACILITY CONTACT:** Jim LaRue, Southwestern Environmental Consulting, Inc. (Main consultant for the PRPs)
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FACILITY CONTACT: Amos Dawson III, Attorney, Maupin Taylor Ellis & Adams, P.A. (Attorney for the PRPs)
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FACILITY CONTACT: Gary Babb, Babb & Associates, P.A. (Consultant for the City of High Point)
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FACILITY CONTACT: Steve Earp, Smith Moore LLP (Attorney for the City of High Point)
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FACILITY CONTACT: J Brooks Reitzel, Jr. (Bankruptcy Attorney)
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2. **INSPECTION PARTICIPANTS:** Gary Babb, P.G. (Babb & Associates), Thomas Glover, Jr. P.E. (Jamestown Engineering Group Inc),Rebecca Wells (City of Greensboro), Heather Sorensen (NCDENR), Bradley Bailey (NCDENR).

4. DATE OF INSPECTION: February 7, 2013

5. PURPOSE OF INSPECTION: Unannounced audit to determine compliance with regulations described at 40 CFR 261, 262, 265, 268 and 279. The last CEI was performed on October 21, 2011.

6. FACILITY DESCRIPTION:

Summary:

Seaboard Chemical Corporation is a closed TSD facility that is bankrupt and undergoing closure. The Seaboard Group (PRPs) have removed all chemicals stored above ground. The Seaboard Group II was formed to address subsurface contamination and remediation. Since the subsurface contamination incorporates the City of High Point's landfill site adjacent to Seaboard Chemical's property, the City of High Point is working in conjunction with the Seaboard Group II in the remediation effort.

Background:

The Seaboard Facility is comprised of approximately 13 acres of land, of which approximately 5-acre were developed for use as a plant and office area. The remaining area is undeveloped, wooded and bisected by a small unnamed stream. The Seaboard Facility is bordered to the north and east by the Riverdale Landfill, a closed municipal solid waste landfill.

Between 1974 and 1989 Seaboard Chemical Corporation operated solvent recovery and fuel blending processes at the Facility, and was granted Interim Status under the Resource Conservation and Recovery Act ("RCRA") as a treatment, storage and disposal facility in 1982. The facility was divided into 13 operating areas corresponding to the different activities conducted. These included, among other things, distillation, fractionation and condensation of organic solvent wastes. Seaboard also provided services such as thermo-setting monomer purification and recovery, chrome steel drum drying, solids pulverizing, batching and mixing. In addition, three surface impoundments were in service at the facility during the time that Seaboard was in operation. Other supporting operations included wastewater treatment, storage of incoming wastes in drums and above ground storage tanks, storage of certain recyclable materials in dedicated tanks and operation of two boilers located in a house. The property had also been used for chemical processing before Seaboard's ownership, during the period prior to 1974. Prior to that, time the property was reportedly used as a hog-slaughtering and processing facility.

The Seaboard Chemical Corporation ceased all activities in 1989, and the facility is no longer in operation. The Company ceased all activities when it was denied a special use permit by Guilford County. The corporation declared bankruptcy and was not able to fund the cost of performing the necessary site closure. The property is owned at this time by the bankruptcy estate of Seaboard Chemical Corporation and administered by J. Brooks Reitzel, Jr. bankruptcy trustee.

Following abandonment of the facility by the owner, DENR requested parties that may have used the services of Seaboard Chemical Corporation in the past (also referred to as potentially responsible parties or "PRPs") attend a meeting held in Raleigh, NC in 1990. Following that meeting, Seaboard Group I was formed by the PRPs for the purpose of conducting a voluntary removal action for potentially hazardous materials remaining at the site and to develop some initial assessment information.

Removal activities were conducted during 1990 and 1992 to remove all remaining waste materials and certain tanks and equipment from the Seaboard Facility. In addition, an initial screening

evaluation of the Site was performed, and a Remedial Investigation Work Plan was developed. Following that removal activity, Seaboard Group I was dissolved.

Seaboard Group II ("Group") was then formed to perform a remedial investigation and to prepare a baseline risk assessment, feasibility study and flow and solute transport model for the Site. Seaboard Group II was also to perform certain other functions necessary to develop a conceptual remedy for the Site. The Group entered into an agreement with the City of High Point to perform a remedial investigation since the close proximity of the landfill and Seaboard Chemical Corporation facility made joint investigation of the two sites advantageous for both the City and the Group The Parties then entered into AOCs with DENR to perform the remedial investigation on January 30, 1996 and the feasibility study on July 22, 1997.

All structures at the Seaboard Facility have been removed. A second security fence has been constructed around the entire perimeter of the Seaboard Facility to prevent unauthorized access. The City also stored excess mulch on the concrete pavement to discourage trespassers, and the Site is inspected periodically. Institutional controls and land use restrictions approved by DENR will be implemented at the Site and necessary adjacent areas. Land use restrictions will be placed on the property to restrict future uses that could present potentially unacceptable exposure risks (e.g., residential development, use of impacted ground water, etc.). The land use restrictions will be in the form of perpetual declarations to be recorded with the property deed and/or through the development of zoning or permit restrictions against the potentially unacceptable activities. A deed declaration will describe the scope of the land use restrictions, and will include a survey and property description to define the areas of concern.

Remedial investigations conducted at the Site have documented the presence of chlorinated and non-chlorinated hydrocarbon compounds in soils, leachate and ground water. The remedial investigation results indicated the presence of dense non-aqueous-phase liquids in the fractured bedrock aquifer underlying the Site. One of the remedy recommendations proposed was a protective remedial strategy for the impacted soils, leachate and ground water based on the results of the remedial investigation, baseline risk assessment and feasibility study. The remedial strategy proposed natural attenuation, contaminant mass reduction and containment of impacted soils, leachate and ground water.

The proposed remedial design consisted of groundwater extraction and treatment in combination with institutional controls including site access control, recorded land use restrictions and restriction of water supply well construction. The proposed remedy would prevent movement of contaminants into the Deep River and the Northern and Southern Intermittent Streams and prevent exposure to impacted soils and groundwater at the Site. Because this remedy would involve a long time frame, extraction of ground water at a rate necessary to contain contaminant migration is proposed. Groundwater and surface water sampling would monitor the effectiveness of the remedy to ensure that there is no unacceptable migration of contaminants to the Deep River or Randleman Reservoir.

It was determined that the most effective long term method to accomplish the treatment of the extracted ground water was through natural treatment processes such as engineered constructed wetlands and phytoremediation. This method would involve the use of treatment wetlands in combination with an upland phytoremediation system comprised of rapidly growing poplar trees and more slowly growing conifer trees to provide year-around treatment effectiveness for the extracted ground water.

The VOC-impacted soils underlying the former operations area of the Seaboard Facility are currently covered by concrete pavement. As part of the remediation plan, the existing concrete pavement would be utilized and maintained as a cap to prevent direct exposure to impacted soils and reduce infiltration of rainfall and potential migration of soil contaminants. Based on a visual inspection, an engineering evaluation has determined the general integrity of the existing concrete pavement and verified its effectiveness for use as a remedial cap. Areas in need of cap enhancement or repair will be addressed.

The natural remediation approach for the Site would consist of two distinct components: a constructed wetland treatment system and an upland phytoremediation system. Currently, it is proposed that the constructed wetland systems will treat ground water from the extraction points near the Deep River, NIS and SIS and collected landfill leachate, and that treated effluent will ultimately be distributed to the upland phytoremediation system.

There would be an initial period during which the poplar stand will be less than 100% effective. There would also be as much as a 7 year period during which the conifer trees will not be 100% effective. This would depend on the final design, the number and type of trees used, the location of the natural treatment system and other factors that have yet to be determined. During this period a HiPO$_x$® system will be used to augment the natural treatment systems.

A physical or chemical treatment process will provide supplemental treatment of extracted ground water and leachate prior to the natural processes becoming mature and fully effective, and to provide an alternative to the natural processes if they do not perform in accordance with the design estimates.

The HiPO$_x$® unit consists of a series of in-line reactors. Ozone is injected into each reactor and hydrogen peroxide is injected periodically. The amount of ozone and hydrogen peroxide and the number of reaction zones required for a given water treatment system are determined by the water flow rate, the composition and concentration of organic compounds in the influent and the desired effluent concentrations.

The HiPO$_x$® system uses hydroxyl radicals ($\cdot$OH) to oxidize organic contaminants in ground water and leachate. Hydroxyl radicals are one of the most powerful natural oxidizing agents for the destruction of organic compounds in ground water and leachate treatment applications.

The ground water leaving the HiPO$_x$® system will require additional treatment to be acceptable for any of the options that are available for the ultimate disposition of the treated effluent. Two technologies were identified that are known to be effective in removal of chlorinated organics. Constructed treatment wetlands are effective for this purpose. They are part of the natural process that has been identified as the ultimate goal for the treatment process. The other process is the physical stripping of the chlorinated organics in an air stripper or aerated retention tank. The proposed remedy may include some form of air stripping technology to provide an alternative to the constructed treatment wetlands if necessary.

The air stripper and aerated retention tank consist of either a tower containing a series of perforated trays or a tank that contains a series of air diffusers. Ground water is pumped into the top of the air stripper and air is blown up from the bottom, passing through the perforations and contacting the water. As the ground water cascades over the trays and contacts the air, volatile organic compounds are stripped out of the water and carried off in the air. The air discharges out of the top of the unit and is dispersed into the ambient air. The aerated retention tank uses the same principle except that the ground water is pumped into a tank where it is retained for a period of time while air is injected through diffusers to strip the volatile organic compounds, which are dispersed into the air. Air stripping or aeration may occur either before or after the HiPO$_x$® treatment, depending on the most effective process configuration. The need to install air stripping will be determined based upon the effectiveness of the constructed wetlands. Ground water reinjection was identified as one of the alternatives to the natural treatment systems for disposition of the process effluent from the HiPO$_x$® system. Another alternative to the natural treatment systems for the disposition of the effluent from the HiPO$_x$® treatment system is to discharge the treated water to the EWWTP.

7. WASTE STREAMS GENERATED:

No active generation of hazardous waste from an on-site process currently exists.

8. INSPECTION COMMENTS:

On the day of the inspection, the participants (listed above) met onsite to observe the installed systems and to be introduced to the equipment and technology that has been installed. The system is not currently in operation, but is undergoing start-up procedures intended to test the integrity of pumping systems, tightness of piping systems, alarms settings, software debugging, and electrical connections. Currently, City of High Point water is being supplied to the system to test its operability. It is currently estimated to be fully operational in July 2013.

First site visit was the original operating area of the Former Seaboard Chemical Facility buildings. Foundations and retention pond areas are all that remain.

Second site was a drive past the Leachate Lift Station and recovery wells currently connected to the system.

Third site was a drive past the phyto-remediation areas amongst the pine tree area and recently replanted cedars. Irrigation drip lines were observed.

Fourth site was the area of the remediation system. W-23A and W-23B were observed un- locked and labeled. WSW-1 well located atop the soil residue mound. Well was labeled but not locked.

9. ACTION ITEMS:

Unlabeled and Unlocked casing

W-23B unlocked casing and loose 2” monitor well cap

WSW-1 unlocked but labeled

- The wells need to be labeled, rehabilitated and kept locked.

- **40 CFR 265.91(c) All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated, and packed with gravel or sand where necessary; to enable sample collection at depths where appropriate aquifer flow zones exist. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed with a suitable material (e.g., cement grout or bentonite slurry) to prevent contamination of samples and the ground water.**

- **All wells other than water supply shall meet the standards listed in: 15A NCAC 02C .0108**

- All wells were not inspected on day of inspection but are subject to the same requirements.

Bradley Bailey Date: 25 FEB 2013

Bradley Bailey
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